



General

Guideline Title

A.S.P.E.N. clinical guidelines: nutrition support of adult patients with hyperglycemia.

Bibliographic Source(s)

McMahon MM, Nystrom E, Braunschweig C, Miles J, Compher C, American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) Board of Directors. A.S.P.E.N. clinical guidelines: nutrition support of adult patients with hyperglycemia. JPEN J Parenter Enteral Nutr. 2013 Jan;37(1):23-36. [60 references] [PubMed](#)

Guideline Status

This is the current release of the guideline.

Recommendations

Major Recommendations

Definitions for the grading of recommendations (Strong, Weak, Further Research Needed) and levels of evidence (High, Moderate, Low, Very Low) are provided at the end of the "Major Recommendations" field.

What is the Desired Blood Glucose Goal Range in Adult Hospitalized Patients Receiving Nutrition Support?

The authors recommend a target blood glucose goal range of 140–180 mg/dL (7.8–10 mmol/L). (Strong)

How is Hypoglycemia Defined in Adult Hospitalized Patients Receiving Nutrition Support?

The authors recommend that hypoglycemia be defined as a blood concentration of <70 mg/dL (<3.9 mmol/L). (Strong)

Should Diabetes-Specific Enteral Formulas Be Used for Adult Hospitalized Patients With Hyperglycemia?

The authors cannot make a recommendation at this time. (Further research needed)

Definitions:

Level of Evidence

High: Further research is very unlikely to change the authors' confidence in the estimate of effect

Moderate: Further research is likely to have an important impact on the authors' confidence in the estimate of effect and may change the estimate

Low: Further research is very likely to have an important impact on the authors' confidence in the estimate of effect and is likely to change the estimate

Very Low: Any estimate of effect is very uncertain

Grade of Recommendation

Strong: Net benefits outweigh harms

Weak: Tradeoffs for patient are important

Further research needed: Uncertain tradeoffs

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

- Conditions or disease states requiring nutrition support
- Hyperglycemia

Guideline Category

Diagnosis

Evaluation

Management

Clinical Specialty

Critical Care

Endocrinology

Gastroenterology

Geriatrics

Nursing

Nutrition

Pharmacology

Intended Users

Advanced Practice Nurses

Allied Health Personnel

Health Care Providers

Hospitals

Nurses

Pharmacists

Physician Assistants

Physicians

Guideline Objective(s)

To summarize the most current evidence and provides guidelines for the desired blood glucose goal range in hospitalized patients receiving nutrition support, the definition of hypoglycemia, and the rationale for use of diabetes-specific enteral formulas in hospitalized patients

Note: This guideline does not address other specific strategies for managing hyperglycemia in patients receiving nutrition support, as there are little to no data to support clinical practice recommendations in this area.

Target Population

Adult hospitalized patients receiving nutrition support

Interventions and Practices Considered

1. Target blood glucose goals
2. Criteria for defining hypoglycemia in hospitalized patients receiving nutrition support
3. Diabetes specific enteral formulas for adult patients with hyperglycemia (considered but not recommended).

Major Outcomes Considered

- Mortality
- Adverse outcomes associated with hyperglycemia
- Glycemic and lipid control

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

For the current Clinical Guideline, inclusion criteria of adult subjects, complication of hyperglycemia, and hospital setting were used. Search terms of diabetes mellitus, hyperglycemia, hypoglycemia, clinical outcomes, parenteral nutrition, and enteral nutrition were applied in various combinations to CENTRAL (The Cochrane Library), MEDLINE, EMBASE, Science Citation Index Expanded, LILACS, and CINAHL (until December 2011).

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Level of Evidence

High: Further research is very unlikely to change the authors' confidence in the estimate of effect

Moderate: Further research is likely to have an important impact on the authors' confidence in the estimate of effect and may change the estimate

Low: Further research is very likely to have an important impact on the authors' confidence in the estimate of effect and is likely to change the estimate

Very Low: Any estimate of effect is very uncertain

Methods Used to Analyze the Evidence

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

A systematic review of the best available evidence to answer a series of questions regarding glucose control in adults receiving parenteral or enteral nutrition was undertaken and evaluated using concepts adopted from the Grading of Recommendations, Assessment, Development and Evaluation working group.

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) Clinical Guidelines have adopted concepts of the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) working group. Briefly, specific clinical questions where nutrition support is a relevant mode of therapy are developed and key clinical outcomes are identified. A rigorous search of the published literature is conducted, each included study assessed for research quality, tables of findings developed, the body of evidence for the question evaluated, and a recommendation for clinical practice that is based on both the best available evidence and the risks and benefits to patients developed by consensus. Recommendations are graded as strong when the evidence is strong and/or net benefits outweigh harms. Weak recommendations may be based on weaker evidence and/or important trade-offs to the patient. When limited research is available to answer a question, no recommendation can be made.

Rating Scheme for the Strength of the Recommendations

Grade of Recommendation

Strong: Net benefits outweigh harms

Weak: Tradeoffs for patient are important

Further research needed: Uncertain tradeoffs

Cost Analysis

A cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

A consensus process was used to develop the clinical guideline recommendations prior to external and internal review and approval by the American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) Board of Directors.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence ranges from prospective randomized trials to expert opinion/consensus.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

In hospitalized patients receiving nutrition support:

- Reduction in adverse outcomes due to hyperglycemia
- Improvement in assessment (definition/target range) of blood glucose control

Potential Harms

Both hyperglycemia and hypoglycemia (resulting from attempts to correct hyperglycemia) are associated with adverse outcomes in diabetic as well as nondiabetic patients.

Qualifying Statements

Qualifying Statements

American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) Clinical Guidelines are based on general conclusions of health professionals who, in developing such guidelines, have balanced potential benefits to be derived from a particular mode of medical therapy against certain risks inherent with such therapy. However, the professional judgment of the attending health professional is the primary component of quality medical care. Because guidelines cannot account for every variation in circumstances, the practitioner must always exercise professional judgment in their application. These Clinical Guidelines are intended to supplement, but not replace, professional training and judgment.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Resources

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

Living with Illness

IOM Domain

Effectiveness

Identifying Information and Availability

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Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2013 Jan

Guideline Developer(s)

American Society for Parenteral and Enteral Nutrition - Professional Association

Source(s) of Funding

Guideline Committee

Not stated

Composition of Group That Authored the Guideline

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Financial Disclosures/Conflicts of Interest

Financial disclosure: none declared

Guideline Status

This is the current release of the guideline.

Guideline Availability

Electronic copies: Available from the [Journal of Parenteral and Enteral Nutrition Web site](#) .

Availability of Companion Documents

The following is available:

Clinical guidelines for the use of parenteral and enteral nutrition in adult and pediatric patients: applying the GRADE system to development of A.S.P.E.N. clinical guidelines. American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.). 2012 Jan. 5 p. Electronic copies:

Available from the [Journal of Parenteral and Enteral Nutrition Web site](#) .

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI Institute on December 27, 2012. The information was verified by the guideline developer on January 21, 2013.

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